The Best Choice for Grid Abnormal Simulation

Not only provide simulation for standard voltage and frequency, Preen's AFV-P series can also simulate sags, surges, dropouts and spike of mains supply, covering various power conditions and verification items. Featured with DC output and outstanding output performance, AFV-P series has been widely used in motor, home appliance, military, aircraft and power module industries.

Output Voltage Up to 1240V
Ideal for all kinds of application

Output Frequency Up to 1000Hz
Suitable for defense and military industries.

THD ≦ 0.3%
High output performance

- **Power Line Disturbance simulation (PLD)** for pre-compliance tests of IEC-61000-4-11/14/28 etc.
- **Intuitive Local Operation** providing quick hand-on experience.

9 Times Inrush Capability*

*for 600VA and 1250VA models only

AFV-P Series

TAIWAN EXCELLENCE 2017

RoHS Compliant CE

Output Power
600VA~5kVA

Interfaces

Standard	Option
Ethernet	GPIB
USB	Analog
RS-232	
RS-485	

Applications

- Home Appliance
- Laboratory/Certification Bureau
- Industrial Power Supply
- Electric Vehicles
- Motor & Compressor
- IT / SMT Production Line
- Aerospace & Defense
- Transportation

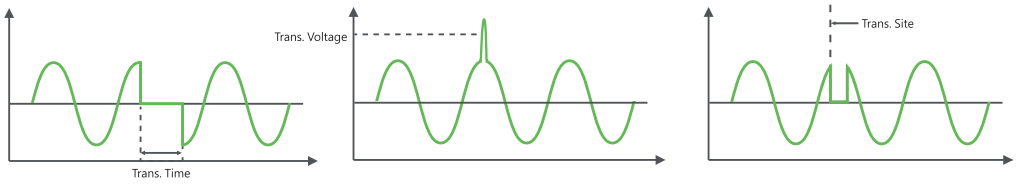
High Performance Programmable AC Power Source

Preen's AFV-P Series is a programmable AC power source with DC output and precision measurement. This compact power source provides clean power with THD less than 0.3% at 50/60 Hz and it delivers output voltage of 0-310 V and frequency of 40-500 Hz (opt. 15-1000 Hz). It is ideal for commercial, defense and aerospace test applications from design verification,quality assurance, ATE to mass production.

AFV-P series comprises measurement features of rms voltage, rms current, true power, apparent power, power factor, crest factor, reactive power and etc. Its 5" touch screen with rotary knob allows quick adjustments and configurations of voltage, current and frequency. Total 1200 test steps in 50 built-in memories and transient generation functions allow simulations of voltage variations, surges, drops and frequency disturbances. Users can set up starting and ending phase angle from 0 - 360 degrees and they can also remotely control AFV-P via standard interfaces. Free control software and LabVIEW driver are available for easy programming and remote control.

- Compact and high power density: 600VA to 2500VA is only 2U and 5000VA is 4U.
- AC source with DC output: extend the applications to DC testing.
- Wide output voltage of 0-310V and output frequency of 15-1000Hz.
- THD is only under 0.3 % when output power is under 100 Hz.
- Ideal for inrush current : capable to deliver up to 4.5 times of peak current.
- Start/End phase angle: users can define the start and end phase angle from 0° to 359°.
- Current foldback feature: have output current maintain constant based on the load which output voltage varies.
- STEP and RAMP function: ideal for voltage and frequency variation tests and effectively reduces the inrush current during motor startup.
- TRANSIENT generation provides users an easy setup for power line disturbance (PLD) simulation.
- Users can quickly set and view the parameters via 5 inches touch panel or rotary knob, which provides an easy operation and measurement display.
- Free control software and LabVIEW driver: allow users to easily program and remote control.
- High slew rate: less than 300 μs from 0~90% output voltage.

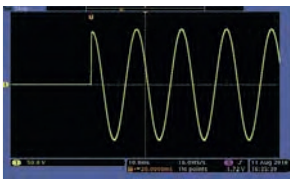
Programmable Simulations: Transient Feature



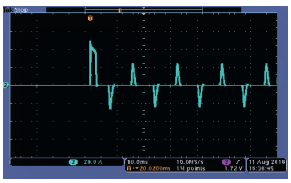
Through the Transient feature, user can have more control over the waveform by inserting disturbance at user-defined locations with user-defined drop/rise range. This is a useful feature to simulate different pre-compliance tests and various types of power line disturbance, such as surge, sag, spike and dropout, for immunity tests.

Ideal for High Inrush Current EUT & Start / End Angle Setting

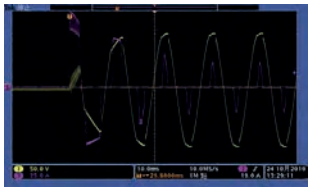
Power Supply Testing



90° Start Angle



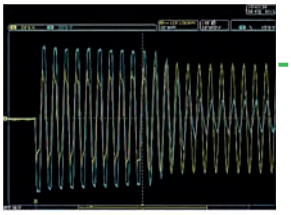
Inrush Current for 90° Start Angle



AFV-P-1250
Waveform with 9 times of max. output current

For switching supply (rectified load), AFV-P-600 and AFV-P-1250 provide standard inrush current as 4.5 times of max. output current, and optional 9 times of max. output current is also available as option, which make AFV-P series the lowest capacity in the market that can achieve the highest inrush current. The user doesn't have to buy high-capacity power supply just in keeping with the high inrush current characteristic of the load. Reduce the costs and save the space.

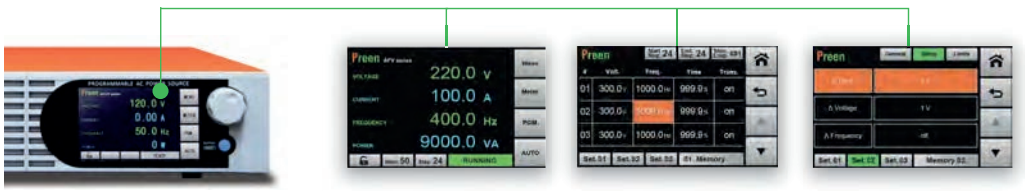
Motor Type Testing



Capable to sustain high start inrusch current generated by motor or compressor.

The AFV-P series can provide up to 4.5 times of peak current from its maximum rated current, which is ideal for inrush current test, such as electric motor test. Additionally, the AFV-P series allows user to set the start angle/end angle for the product output, which is suitable for testing switching power supplies.

Intuitive Touch Screen Control

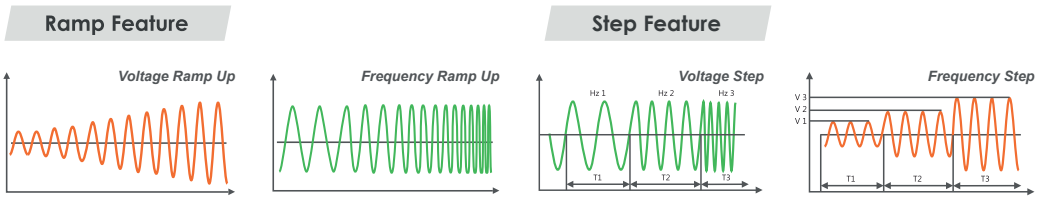


To create a complex sequence on the HMI is no longer a difficult task for AFV-P series. The 5 inches touch screen provides users a clear display and an easy set up. AFV-P is also equipped with a rotary knob for better fine tune adjustments.

Multiple Communication Interfaces & Control Software

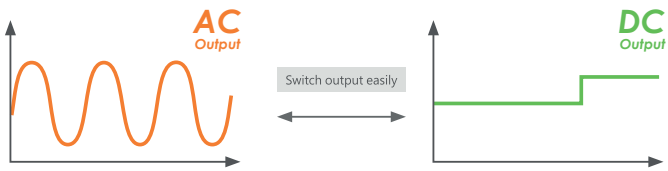
The AFV-P series is equipped with communication interfaces of USB, Ethernet, RS232, and RS485, so users no longer need to spend extra on remote interface card. Only GPIB and analog are optional interfaces. AFV-P also provides control software with comprehensive programming features and LabView driver, which help users to easily control the AC source without further needs of programming.

Programmable Simulation Functions: Step & Ramp Features



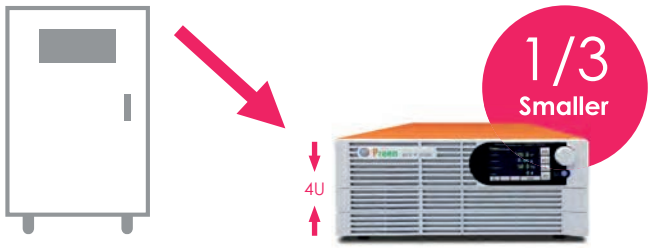
Ramp and Step feature allows users to define slew rate of voltage and frequency at each Step. Users can set the rise/fall time, time unit and voltage/frequency change between Steps to create a wide range of waveform. Additionally, Ramp feature can effectively reduce the inrush current by simulating soft start for motor or compressor startup.

AC Output & DC Output



AFV-P series not only provide AC output to simulate real world grid conditions, but also can generate DC output based on user's settings. It is an ideal cost-effective power testing solution for R&D and certification laboratories.

Compact & High Power Density



Conventional 5kVA AC Source

AFV-P Series 5kVA

AFV-P series has the industry-leading power density and rack-mount type design for easy system integration. 2500VA only comes in 2U and 5000VA is only in 4U.

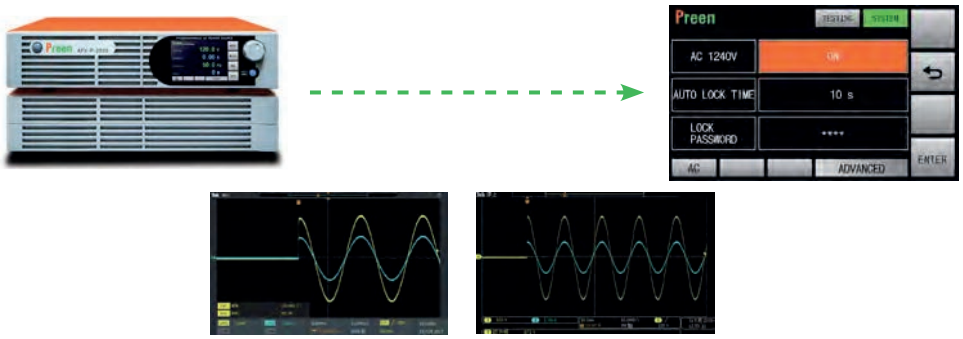
Fast Response & High Stability

AFV-P series is a high performance AC source with fast response time, low total harmonic distortion and tight voltage regulation. With its technically advanced features, users can easily simulate power line disturbance, such as sags, surges, dropouts and spikes.

Screen Lock Password Function

In order to prevent the operator from changing the set parameters by mistake, the new Screen Lock Password function is added on AFV-P series, so that the operator can only perform the output of the device, and only authorized personnel has the password to unlock the screen and edit parameters.

High-Voltage Output 620V/1240V (Opt.)

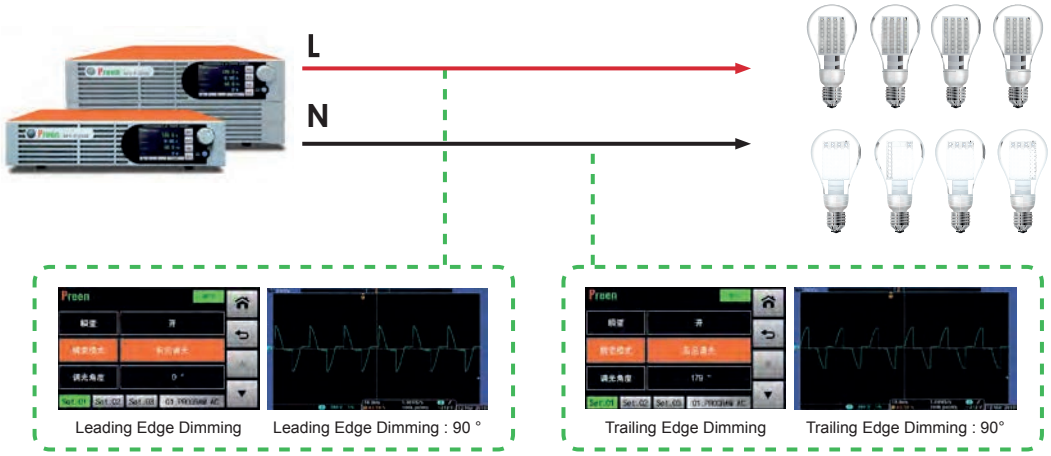


AFV-P5000 :
620V/60Hz /6.31A/3916.8W

AFV-1250 :
1000V/60Hz/0.74A/741W

AFV-P series provides optional high-voltage output 620V or 1240V to meet the high voltage requirements on simulations of wide input voltage variations (15%~20%), over-voltage and other extreme conditions. For example, it can simulate US 277V with at least 15% and other wider range of over-voltage testing.

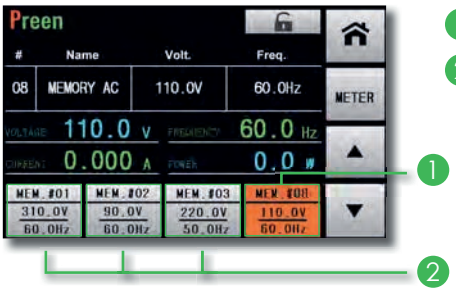
LED TRIAC Dimmer (Opt.)



Leading Edge Dimming | Leading Edge Dimming : 90 ° | Trailing Edge Dimming | Trailing Edge Dimming : 90°

AFV-P series provides optional LED TRIAC Dimmer function, which can simulate output of TRIAC dimmer. The user can select whether to perform LEADING EDGE DIMMING or TRAILING EDGE DIMMING via HMI. Compared with traditional TRIAC dimming, the output waveform can be controlled more accurately and effectively.

Shortcuts of Output Memory set (BASIC Mode)

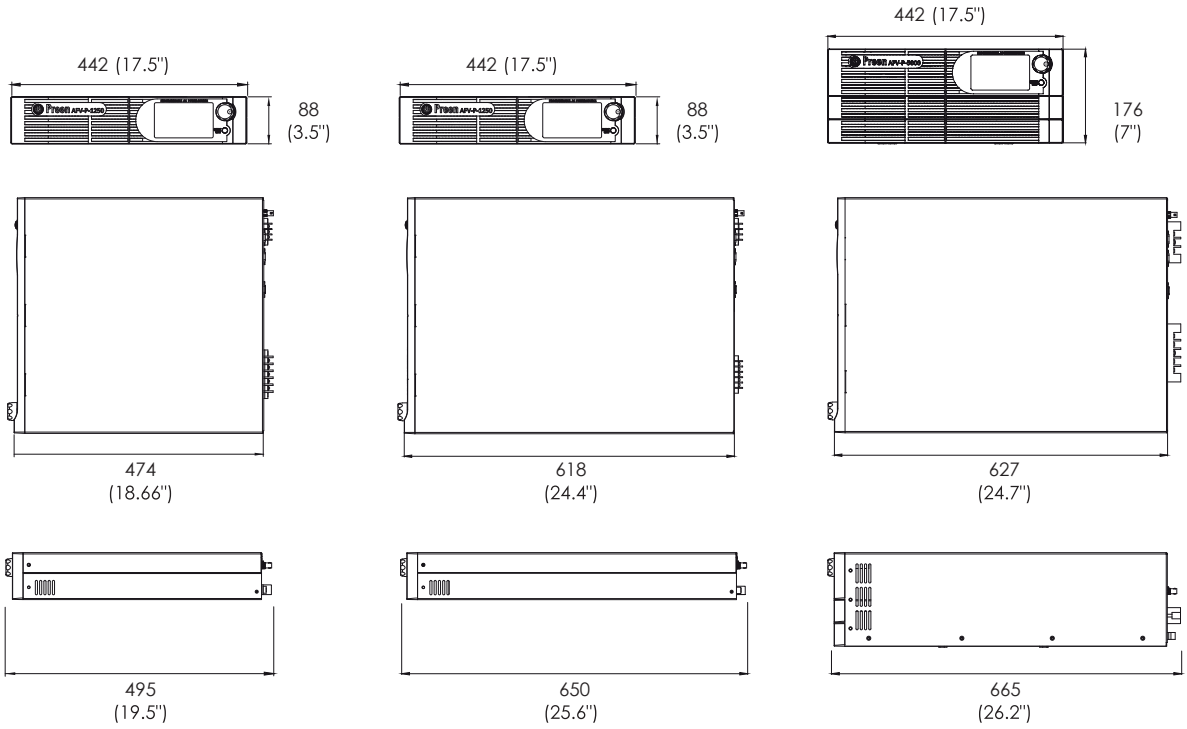


1. **One user-assigned shortcut from 50 memory sets**
2. **Three fixed shortcuts from first three memory sets**

AFV-P series can display 4 shortcuts of Memory Sets in BASIC Mode, and the voltage and frequency setting of each Memory Sets can be clearly read. The user can quickly switch the output by selecting the shortcuts. Also, the Screen Lock function is also provided for preventing operators from accidentally changing shortcuts during output and causing DUT damage.

DIMENSIONS

Unit : mm (inch)



AFV-P-600/1250 **AFV-P-2500** **AFV-P-5000**

PANEL DESCRIPTION

1. Power Switch
2. Touch Screen HMI
3. Rotary Knob
4. Output / Reset
5. AC Output Socket
6. Output Terminals
7. Remote Sense
8. USB Interface
9. RS-232 / RS-485
10. Ethernet Interface
11. Input Voltage Selector
12. PLC Remote In/Out
13. Input Socket *
14. USB Interface (for firmware update)
15. Sync. Singal I/O

* AFV-P-1250, AFV-P-2500, AFV-P-5000 have input terminals.

SPECIFICATIONS

AFV-P Series Single-Phase Output (600VA - 5kVA)

Model		AFV-P-600	AFV-P-1250	AFV-P-2500	AFV-P-5000
INPUT					
Phase		Single			
Voltage		98-132VAC / 196-264VAC		196-264VAC(opt. 175-235VAC)	
Frequency		47 - 63 Hz (opt. 400Hz)			
Max. Current		10A	20A	20A	40A
OUTPUT					
Power	VA	600VA	1250VA	2500VA	5000VA
	W	500W	1000W	2000W	4000W
Phase		1Ø / 2 Wire + G			
Voltage Ranges		0 - 155Vrms / 0 - 310Vrms, user selectable			
Voltage Accuracy		± (0.5 % of setting + 0.1% F.S.)			
Voltage Resolution		0.1Vrms			
Frequency		A : 15-1000Hz , B : 40-500Hz			
Frequency Accuracy		±0.02%			
Frequency Resolution		0.1Hz, 1Hz			
Max. Current (RMS)		5A / 2.5A	10A / 5A	20A / 10A	40A / 20A
Max. Current (Peak)		22.5A / 11.3A	45A / 22.5A	90A / 45A	180A / 90A
Total Harmonic Distortion (THD)		≦ 0.3% at 40-100Hz, ≦ 0.5% at 101-500Hz, ≦ 0.8% at 501-1000Hz (Resistive Load)			
Line Regulation		± 0.1V			
Load Regulation		≦ 0.07% F.S. (Resistive Load)			
Response Time		≦ 300μs			
Crest Factor		≧ 3			
Inrush Current		≧ 4.5 time of max.output current (R.M.S)			
DC OUTPUT					
Power		300W	600W	1250W	2500W
Voltage Ranges		0 - 210V / 0 – 420V			
Max. Current		2.5A / 1.25A	5A / 2.5A	10A / 5A	20A / 10A
Ripple & Noise (RMS)		≦ 0.15%			≦ 0.24%
MEASUREMENT					
Voltage Range		0 - 420Vrms			
Voltage Accuracy		±(0.2% of reading + 5 counts)			
Voltage Resolution		0.1V			
Frequency Range		15 - 1000Hz			
Frequency Accuracy		±0.1Hz at 40.0 - 500Hz, ±0.2Hz at 501 - 1000Hz			
Frequency Resolution		0.1Hz			
Current Range		Hi: 1 - 12A / Lo: 0.005 - 1.2A		Hi: 2 - 24A / Lo: 0.005 - 2.4A	Hi: 0.05A - 48.00A
Current Accuracy		± (1% of reading + 5 counts) at 40.0 - 500Hz, ± (1% of reading + 10 counts) at 501 - 1000Hz*2			
Current Resolution		Hi: 0.01A / Lo: 0.001A			Hi: 0.01A
Peak Current Range		0 - 45A		0 - 90A	0 - 180A
Peak Current Accuracy		± (1% of reading + 5 counts) at 40.0 - 500Hz, ± (1% of reading + 10 counts) at 501 - 1000Hz			± (1% F.S.+ 5 counts)
Peak Current Resolution		0.1A			
Power Range		Hi: 100 - 1200W / Lo: 0 - 120W		Hi: 200 - 2400W / Lo: 0 - 240W	Hi: 0 - 4800W
Power Accuracy		± (2% of reading + 10 counts) @ 40 - 500Hz, ± (2% of reading + 15 counts) @ 501 - 1000Hz			
Power Resolution		Hi: 1W / Lo: 0.1W			Hi: 1W
GENERAL					
Efficiency		≧ 77% at max. power	≧ 80% at max. power		
Protection		OVP , UVP , OCP, LVP, OPP, OTP, RCP, Fan Fail and AMP Fail			
Remote Interface		Standard: RS232 / RS485 / Ethernet / USB / PLC Remote In&Out, Optional: GPIB / Analog Control			
Over Current Foldback		Output Current maintains constant based on the load while output voltage varies			
Output Sync Signal		ON, Event for Voltage or Frequency Change (Output signal 5V , BNC type)			
Memories		50 Memories & 1200 Steps (24 Steps/Memory)			
Operating Temperature		0˚C - 40˚C			
Dimensions(HxWxD)		88 x 442 x 495mm		88 x 442 x 650mm	176 x 442 x 665mm
		3.5 x 17.4 x 19.5inch		3.5 x 17.4 x 25.6inch	6.9 x 17.4 x 26.2inch
Weight		16kg	20kg	31.3kg	61.5kg
		35.3lbs	44.1lbs	69lbs	135.6lbs

* 1 All specifications are subject to change without notice.

* 2 AFV-P-2500 is ±(1% F.S. + 5 counts)

ORDERING INFORMATION

AFV-P Series Single-Phase Output (600VA - 5kVA)

Model Number	Description
AFV-P-600A	High Performance Programmable AC Power Source(600VA/310VAC/15-1000Hz)
AFV-P-1250A	High Performance Programmable AC Power Source(1250VA/310VAC/15-1000Hz)
AFV-P-2500A	High Performance Programmable AC Power Source(2500VA/310VAC/15-1000Hz)
AFV-P-5000A	High Performance Programmable AC Power Source(5000VA/310VAC/15-1000Hz)
AFV-P-600B	High Performance Programmable AC Power Source(600VA/310VAC/40-500Hz)
AFV-P-1250B	High Performance Programmable AC Power Source(1250VA/310VAC/40-500Hz)
AFV-P-2500B	High Performance Programmable AC Power Source(2500VA/310VAC/40-500Hz)
AFV-P-5000B	High Performance Programmable AC Power Source(5000VA/310VAC/40-500Hz)
AFV-P-T620A	620V Transformer Box(AFV-P-600 & AFV-P-1250)
AFV-P-T620B	620V Transformer Box(AFV-P-2500)
AFV-P-T620C	620V Transformer Box(AFV-P-5000)
AFV-P-T1240A	1240V Transformer Box(AFV-P-600 & AFV-P-1250)
AFV-P-T1240B	1240V Transformer Box(AFV-P-2500)
AFV-P-T1240C	1240V Transformer Box(AFV-P-5000)
AFV-P-001	RS-232/RS-485/USB/Ethernet Interface
AFV-P-002	GPIB Interface
AFV-P-003	Analog Control Interface
AFV-P-004	RS232 Cable (1.8m / Female to Male)
AFV-P-008	Input Power Cable 1.8M (for 600VA)
AFV-P-009	Input Power Cable 3M (for 1.25kVA/2.5kVA)
AFV-P-010	Input Power Cable 5M (for 5kVA)
AFV-P-011	Input 400Hz (at input 110V/220V ±10%)
AFV-P-012	Output 320V (at input 110V/220V ±10%)
AFV-P-013	LED TRIAC Dimmer Simulation
AFV-P-014	Output 9 times of Inrush Current (AFV-P-600 & AFV-P-1250)